# House Select Committee on North Carolina River Quality

**Thursday, October 26, 2017**
**Room 643 Legislative Office Building**
**9:30 a.m.**

**MINUTES**

The House Select Committee on North Carolina River Quality met at 9:30 AM on Thursday, October 26, 2017 in Room 643. Representatives Davis, Grange, Iler, Brisson, Dixon, Harrison, and Steinburg attended. The list of visitors is **Attachment 1.**

Representative Ted Davis, Jr., Senior Chair, presided.

He began by introducing the Sergeants at Arms, Jonas Cherry, David Leighton, Dean Marshbourne, and Reggie Sills. He expressed his thanks and appreciation for what they do for the legislature.

Representative Davis next invited comments from his co-chair, Representative Grange. She apologized for the low turnout for the Committee, but noted that today's discussion would still be significant. She looked forward to getting into a lively discussion.

Representative Davis stated that the Committee had a wonderful first meeting one month prior, with a lot of territory covered and wonderful speakers. Some of the speakers were back to give updates and further reports and there were several new speakers that would be making presentations.

He introduced the first speaker, Dr. Detlef Knappe, Professor, Department of Civil, Construction and Environmental Engineering, North Carolina State University. His complete report titled Emerging Contaminants: A Case Study for the Cape Fear River Basin is **Attachment 2.** His presentation overview included the Cape Fear River Basin case study, noting that is the largest watershed in North Carolina and supplies 1.5 million people with drinking water. About 1 million people are affected by wastewater discharges containing high levels of industrial contaminants. He referred to the universe of chemicals and stated that 6,700 chemicals are manufactured or imported in the amount of 25,000 pounds per year with 700 new chemicals added each year.

Two hundred chemicals are tested for health effects and 80,000 chemical substances are registered for use in the United States commerce. Examples of contaminants of concern include bromide (Br-), which is relatively non-toxic but it reacts with drinking water disinfectants to form disinfection by-products. When bromide levels increase, the concentration of disinfection by-products and the toxicity of disinfection by-products increases. Upgrades to drinking water treatment plants are needed to be in compliance with drinking water standards. In reference to the federal Clean Water Act, he said such discharge "must not have the effect of requiring treatment over and above that which would be necessary in the absence of such discharge in order to comply with local and United States Environmental Protection Agency (U.S. EPA) drinking water standards."

1,4-Dioxane cancer risk. 1,4-Dioxane whose sources include solvent stabilizer (declining, mostly groundwater pollution) industrial solvent and by-product of manufacturing processes involving ethylene oxide (plastics and detergents). 1,4-Dioxane is likely a human carcinogen. His presentation showed the lifetime consumption of drinking water containing three different amounts. He stated that 1,4-Dioxane is not removed in conventional water treatment plants and showed graphs for Pittsboro, North Carolina and Fayetteville, North Carolina.

He detailed management considerations, which included enforcing North Carolina surface water quality standards and control of upstream sources which should be looked at more closely. To protect the public from adverse health effects, health based guidelines have been established. Treatment options include activated carbon (effective for some Per- and polyfluoroalkyl substances (PFAS), but not for others), anion exchange (shows great promise) and reverse osmosis.

Dr. Knappe emphasized that many unregulated contaminants are present in Cape Fear River water; some "emerging" compounds have been in the River for decades; some are by-products of manufacturing processes and the challenges are (1) lack of analytical standards and (2) toxicity data. Finally, new monitoring and permitting approaches are needed to protect drinking water quality in downstream communities.

He showed a diagram showing the work flow for analysis of organic chemicals and spoke on the challenges associated with measuring organic chemicals at low concentrations. This included sample collection, matrix interference, containers—quality assurance/quality control (QA/QC), preservation, and representativeness.

He noted that 1,4-Dioxane concentrations vary rapidly in surface water as shown in a chart of daily composite samples. Matrix interference is a commonly used argument to raise doubt about the accuracy of analytical results and proper QA/QC approaches are necessary; also high resolution mass spectrometry.

Representative Davis recognized some members with questions as Dr. Knappe was continuing his presentation.

In reference to sampling, Representative Dixon asked when the sampling was done.

Dr. Knappe responded that it was done in 2014 to 15, monthly for a period of one year.

Representative Davis noted that when someone talks about the consumption of a certain amount of a particular compound in drinking water having a negative effect, over what period of time are they referencing.

Dr. Knappe responded that the calculations are based on a 70-year exposure and drinking 2 liters a day or roughly a half gallon. It is called the lifetime cancer risk.

In some of the graphs, Dr. Knappe stated the water treatment plants are unable to remove 1,4-Dioxane from the water.

Representative Harrison asked whether that was because the technology was not there or the water treatment plants were not themselves capable.

He responded that they were not equipped to deal with these kinds of contaminants which are difficult to remove and 1,4-Dioxane is very difficult to remove from surface water in particular.

Representative Steinburg asked if there was any technology available that can completely address the problem, whether it is being implemented or not, as it relates to trying to treat the water.

Dr. Knappe answered that there are technologies. One of the challenges is that these contaminants all come from somewhere but they are affecting many drinking water treatment plants downstream. He considered that the right way to address this is to control the input of the contaminant into the River rather than making a dozen

communities downstream all install very expensive treatment plants to get these contaminants out.

Following other comments by Representative Steinburg, Dr. Knappe stated that the axiom in his field is to start out with the highest possible quality of water but this requires careful study in terms of the availability of the resource. In addition to the quality of the resource, that is still water that would have to get treated in some form which would require the construction of new treatment plants, this would take several years. It would probably be faster to control the sources rather than build a new plant. The other challenge is that it may be a solution for some of the impacted communities, but may not be for others so that is also important to consider.

Representative Davis recognized Representative Iler who asked if there was a plant that is using reverse osmosis to treat 1,4-Dioxane effectively.

Dr. Knappe responded that wastewater from a water reuse plant in Orange County, California was impacted by 1,4-Dioxane. Reverse osmosis is partially effective for the removal of 1,4-Dioxane, somewhere between 80 to 90 percent.

Representative Grange thanked the presenter for being here today and asked if we have identified all the sources of risk contaminants.

He stated he was not sure if he could say "all" but some have been identified. In some cases the industry has not been identified but the community in which it is coming from is known.

Representative Davis raised the question of monitoring but noted we can't monitor what is unknown. If it is known that a contaminant exists, and we can find that contaminant based on monitoring, what can be done about it unless you know where it is coming from?

Dr. Knappe responded that non-targeted monitoring can be employed in addition to targeted monitoring. In terms of controlled measures and what can be done, it is necessary to look more closely at industrial pre-treatment programs in communities where these sources exist, look carefully at National Pollutant Discharge Elimination System (NPDES) discharge permits and think about what treatment technologies can be implemented to remove 1,4-Dioxane from the water.

Following a review of the final graphs in his presentation, Dr. Knappe stated that a future monitoring program, should such a thing be developed in this State, should have such instrumentation as an integral part to making sure that we can accurately find and identify chemicals that are present in our drinking water sources.

Representative Davis recognized Representative Dixon for a series of questions. He asked if Dr. Knappe was aware of any past efforts to do something like the Committee is doing now.

The response was that in this State, but he was not aware of any others.

Representative Dixon stated that with all that we do not know about GenX and with other compounds that were 15 times higher, how did we settle on GenX.

Dr. Knappe responded that we settled on GenX for two reasons; (1) they could actually measure its concentration (because there is a standard for it) and (2) there is at least a small amount of toxicological data on it.

Representative Dixon stated he was always amazed on the interplay between issues like this and politics. GenX was jumped on because it was a politically easy thing to do and government often does this. The government turned this into a political event from the beginning and stated that the problem was funding. This Committee, under the direction of the Chairs, is attempting to look at this situation and take the information that they have and deal with it. The great challenge is how can it be done without scaring the public. He wants something to come out of this Committee that is beneficial to his grandchildren.

Representative Harrison was recognized and she thanked Dr. Knappe for his presentation and comments. She asked for information on the Perfluorooctane sulfonate (PFOS) issue that is in Greensboro.

He responded that his group is supporting some of the analytical work for PFOS' occurrence in the Greensboro area, which is handled primarily through the City of Greensboro and their consultant. Most likely the occurrence of PFOS is related to firefighting foam.

She asked if we have any information on the biosolids and asked if we have any regulations or oversight on the biosolids application that contains the contaminants.

Dr. Knappe responded that since they are unregulated contaminants it wouldn't even be looked at.

Representative Davis asked if staff had any comments and Jeff Hudson stated that he would expect that biosolid application generally is regulated and there is a whole department ready to speak. They could probably answer the question in a lot more detail.

Representative Steinburg commented on the public alarm and it being political and perhaps an over-reaction. He asked if there has been any study done in the Wilmington area to determine if there is any uptick in the cancer rate in the last 35 years in this region.

Dr. Knappe responded that this is all being looked at right now by the Centers for Disease Control (CDC) and the State epidemiologist. He further stated that it is not just cancer, but some chemicals have adverse effects on the immune system. There needs to be a more comprehensive look on the potential effects these chemicals have. Dr. Knappe stated his goal was not to create panic but he recommended installing an under the sink treatment system as a layer of safety and to get some of the chemicals out of the water.

There being no further questions from the Committee members, Representative Davis thanked Dr. Knappe and indicated he would probably be getting back in touch with him.

The next presentation was a Department of Environmental Quality (DEQ) update in response to emerging compounds and responses to previous questions given by Sheila Holman, Assistant Secretary. It is **Attachment 3.** Ms. Holman introduced Linda Culpepper, Deputy Director, Division of Water Resources (DWR), DEQ, Tom Fransen, Planning Section Chief in the Division of Water Resources, and Julie Grzyb, Supervisor,NPDES Complex Permitting Branch, DWR. Michael Scott and Mike Abraczinskas were unable to be in attendance today.

Ms. Holman began by stating that DEQ was asked to address several topic areas including an update on latest surface water and groundwater monitoring, information on the air emissions from the Chemours Fayetteville Works facility, how wastewater from the closed loop system at the facility is disposed of, improving the disclosure process for the NPDES permits, any impact of interbasin transfers, a description of

DEQ resources devoted to the monitoring, analysis, and regulation of emerging compounds.

She stated she would be covering the requested information by the Divisions beginning with the surface and wastewater, then ground water, and finally the air emissions. She reviewed the Cape Fear River Sampling Data from 9/15/17 to 9/27/17 and noted that the values at that time were all below the health goal. She explained that DEQ did process area sampling at Chemours at each of the process streams and are just getting the data back from the U.S. EPA National Exposure Risk Lab, so she was unable to speak to that data today. It will help as the Division moves forward with considering any permit changes to the NPDES permit. Weekly sampling of finished drinking water is being continued.

The Division of Water Resources is devoted to the monitoring, analysis, and regulation of emerging compounds. The field staff in Fayetteville and Wilmington are continuing to go out and conduct sampling each week on the finished water and the composite samples being done at Chemours. DWR is also continuing its review of health studies and consultation with state and federal agencies along with national and international water standards. Further details of their research and participation is contained in the attachment.

In the Division of Waste Management, approximately 25 staff are working on the GenX issue--from performing field sampling of the private wells to reviewing the well water data from Chemours and the lab. There is data quality control that is on-going. Health Risk Evaluations (HREs) are the letters that are sent to a well owner once the Division gets sampling data back. If the result is above the health goal, there is advice on what the water can be used for if it can't be used for drinking. There is continuing review of the on-site groundwater and soil data and work with the company on a more comprehensive evaluation of the on-site contamination. The Division is participating in public information meetings and responding to data requests.

Ms. Holman moved on to the Division of Air Quality and the air emissions for GenX. They now have information from the facility on the C3 (GenX) dimer acid fluoride and the C3 dimer acid ammonium salt. The reason that these other two compounds are being looked at is because when they come into contact with water they form GenX. They have received source information, which is where the emissions are being released at the facility, and stack parameters all of which are needed to conduct air dispersion modeling. DEQ and Chemours continue to discuss potential stack

testing which would help verify the actual emissions that are coming out of the plant. DEQ is looking at whether they should conduct ambient air quality monitoring as there are the same kind of issues. There is not really an obvious method for conducting that so they are working to define a potential method.

Ms. Holman announced that she had covered all of her points and was ready to answer questions. Representative Davis asked if there was anyone else who would be making a presentation on the behalf of DEQ and there were no others.

Representative Brisson stated that people were scared, they don't know what water to use or what not to use and he had concerns about the sampling and other issues that were difficult for the general public to digest. They need to know that we are doing everything we can to provide safe drinking water.

Ms. Holman responded that the DEQ staff and the Department of Health and Human Services (DHHS) staff have not been communicating "don't use the water for anything." Part of the challenge is to try to have clear communications and the agencies are trying to get to the point of being very consistent with the messages.

Representative Harrison thanked Ms. Holman for her presentation and stated she wanted to follow up on the biosolid question that she asked Dr. Knappe. She heard concerns from constituents about contaminants not just the emerging chemicals but also heavy metals and others. She asked if there was a regulatory structure or some protection in place for the application of biosolids.

Ms. Holman stated there was a range of permitting as well as monitoring. She further stated that after hearing some of the issues and concerns, she will relook to see if there is more monitoring that should be done.

Representative Harrison shifted to the air issue, noting that in the past couple of years the air toxic's program has been changed. She asked if DEQ has the authority they need to deal with the potential air emissions as it relates to emerging contaminants that might not be on the list.

Ms. Holman responded that it does and the changes to the toxics permitting were more about the emission sources that may be subject to one of the federal technology standards and the company would not be required to do an analysis of those emissions. DEQ, as they were contemplating issuing a permit, could do an analysis of all the emissions.

Representative Davis stated he had a series of questions for Ms. Holman and requested that if she was unable to answer them and there was someone from staff that could, he would be glad to hear from them. He asked, if in looking at an initial permit application or a renewal, was it DWR that reviews those permits.

Ms. Holman responded that it was.

He then asked how many staff members worked on either an original discharge application or a renewal.

Ms. Holman responded that there were nine full time employees (FTE's).

He then asked if there were any applications now that are pending and if there was a backlog.

She stated there was a 41% backlog from 220 major facilities at the present time.

Julie Grzyb, Supervisor of the NPDES Complex Permitting Branch, responded about one-half of the full time employees work on the expedited permits and half of the other nine work on complex permits.

Representative Davis asked how long it takes a staff member to work on a particular permit.

Ms. Grzyb responded that it depends on whether it's a modification or an extension being requested so someone might be able to do it within two to three months if it is something simple, but straight forward with no changes to the facility. However, if they have modifications and there is a new operation being installed or an expansion, it could take six to eight months easily. The employees work five days a week, eight hours a day.

Representative Davis asked if there was a backlog before the GenX situation came up. Ms. Grzyb stated that there was. She noted that DEQ has hired quite a few permanent writers in the past year trying to fill vacancies that have occurred.

He asked how long the backlog has existed and asked for a 10 year chart in order to get an idea of the number of people who have been in the position of doing the

applications. His next question was how many staff members there were actually doing water monitoring throughout the State.

Ms. Holman was to get more information and get it back to him along with exactly what they do and who they report to.

Representative Davis asked if DEQ was monitoring Chemours now or if someone else was monitoring them.

Ms. Holman stated that DEQ continues to monitor Chemours.

He asked if DEQ discovers a contaminant, perhaps in the water, do they notify DHHS.

Ms. Holman went back to the normal method of trying to identify new contaminants and noted that a lot of it comes from the federal Safe Water Drinking Act and U.S. EPA's unregulated contaminant monitoring role. As DEQ looks at new compounds, it is normally following that process so parts of U.S. EPA are already looking at health effects and health studies.

Linda Culpepper, Deputy Director, DWR, DEQ, added that they do collaborate with DHHS.

Representative Davis asked for further information about the spectrometer(s).

Ms. Holman indicated that in their lab, they have several types of mass spectrometers. The one that would need to be purchased for the targeted type analysis that U.S. EPA and others have done is the high resolution mass spectrometer.

Representative Davis asked for an idea of how much they cost.

Ms. Holman thought that a new unit was in the $450,000 range and refurbished, around $330,000. Ideally, it would take a PhD chemist to operate.

In response to Representative Davis' inquiry as to whether there was that type of person on staff, Ms. Culpepper answered that they were advised that they would need to get someone who has that kind of specialized training.

He then asked for an idea of how much a full benefit package would be for someone who would be specifically trained to run that piece of machinery.

Ms. Holman agreed to look into it and get the information back to the Committee, as well as the probable maintenance cost.

Representative Davis expressed concern about the air quality permit with Chemours. Are they emitting GenX into the air?

Ms. Holman stated it was better to characterize it that there are air emission releases as part of the byproducts.

He asked how the GenX would get into the air.

She stated that most of the process units are going to have some venting or stacks where air emissions do escape or release into the atmosphere.

Representative Iler asked if there was a possibility that a university may utilize mass spectrometers on a contract basis.

Ms. Holman said that was something that they would research and get the information back to the Committee.

Representative Dixon was recognized and stated he would like to direct a general question regarding the permitting positions mentioned by Representative Davis and asked if some were receipt supported.

Ms. Culpepper answered that they would outline that when they report back.

He then directed that general question to Fiscal Research and Eric Moore confirmed that there are some positions that are funded via the receipts from the business licensing fees and he agreed to get that number.

Representative Harrison had a follow-up on the question of DEQ not pulling the permit for Chemours and she wanted to clarify that DEQ feels confident that they are not violating.

Ms. Holman responded that based on the information that has been provided, as well as their own sampling, they do feel confident.

Representative Davis thanked Ms. Holman for her presentation as well as the rest of the staff for being in attendance. He stated he looked forward to their response on the questions for which they were going to get the answers.

He announced a recess for lunch and stated DHHS would present after the break.

Representative Davis introduced Dr. Elizabeth Cuervo Tilson, MD, MPH, State Health Director and Chief Medical Officer, DHHS.

She said she appreciated being here and being part of the DHHS team and appreciated the work of the Committee on their dedication and intense effort around a very complicated and important issue that will likely be with us for the next couple of years. DHHS welcomes its partnership with DEQ and the General Assembly in addressing this for the sake of the population. She announced that Danny Staley, MS, Director, Division of Public Health (DPH), DHHS and Dr. Zack Moore, MD, MPH, State Epidemiologist and Epidemiology Section Chief, DPH, DHHS, would also be participating with her.

Dr. Tilson stated she would speak about the Secretaries' Science Advisory Board **(Attachment 4).** She noted that the Advisory Board might be an incredible resource to be able to bring to the Committee meetings going forward. She explained that there was a Secretaries' Science Advisory Board specifically for toxic air pollutants. The new charter that expanded the scope of the Advisory Board will also include soil, ground water, surface water, sediment and air, understanding that the science around environmental health is more than just air. The expanded scope means both DEQ and DHHS are providing guidance to both departments. They will be meeting at least six times a year with more work done in between. The first meeting was on Monday, October 23, 2017 with tentative dates for future meetings on December 4, 2017 and January 29 and March 19, 2018.

The overall functions of the Advisory Board include working with DEQ to evaluate what contaminants are being released into the environment and also grappling with the emerging non-targeted compounds they are finding and what should be done about them. They are evaluating which compounds need more studies and helping to navigate that landscape. The Advisory Board is working with DEQ on their main role, which is the regulatory role, to help them work around regulation of these discharge chemicals.

On the DHHS side, which is more the health side, the Advisory Board will assist in the evaluation of the human health impacts of exposure to hazardous contaminants. They will give input to DHHS and jointly put out scientifically based health goals. Those are the major functions of the Advisory Board.

The new charter not only expanded the scope of the Advisory Board but it increased the membership from eight to sixteen members including experts in toxicology, public health, ecology, engineering and related fields. The list of the members is included as **attachment 5.**

Dr. Tilson noted it was a very impressive membership, some of the best and the brightest that the State has to help work with the public sector and is an important resource. All of the members are appointed by the secretaries of Environmental Quality and Health and Human Services.

At the first meeting of the Secretaries' Science Advisory Board, the members worked through the procedures and the scope. Both DEQ and DHHS identified the first priorities that they hoped to tap into. GenX was one of them and it is being called a "provisional health goal" because as more is learned, that health goal may change. They will also look at the emerging compounds such as PFAS', those for which there is little health information. There are other chemicals and compoundsthat need more awareness and study. These are the first three priorities that were presented at the first meeting. As the Advisory Board moves forward they will address other compounds and chemicals.

Another piece of this is not only tapping into the brain power of the Advisory Board, but also welcoming public input into the process and having the public be a part of the Board. There was a public forum piece at the first meeting and it is anticipated that it will be part of other meetings. The tentative plan is to have the meeting on December 4, 2018 in the Wilmington area for public input. The next one will be held at the end of January and may be located in the western part of the State. The purpose of moving the meetings around is to allow for participation on the part of our citizens.

Dr. Tilson ended her presentation and asked if there were any questions.

Representative Davis expressed concern that there are multiple entities conducting investigations and fact finding. The House Select Committee, the Secretaries' Science Advisory Board, the Senate Select Committee (who may or may not be

investigating), and DEQ and DHHS. The concern is that the left hand is not keeping up with what the right hand is doing, so we are not moving together in a good and efficient manner. He asked if there were any suggestions on how we might keep all these components together to make sure that we are not doing the same things or different things that might conflict with each other. He wanted to keep all the moving parts going in the same positive direction.

Dr. Tilson agreed wholeheartedly, especially when there are a lot of moving parts and uncertainty. Trying to keep everybody together is incredibly important. From the DHHS and DEQ side, the Departments talk all the time. They have three check in calls every week and are working very closely to be sure they are on the same page all the time. The Advisory Board is convened by both DEQ and DHHS and is very well aligned. The Board is almost an extension of DEQ and DHHS, tapping into the brain power to help inform the Departments. She did not see this as fragmentation, but as increased capacity of what DEQ and DHHS can do together. With the House and the Senate she was not sure what could be done to get those two together.

Representative Davis stated that he was trying to think of a realistic way this Committee might be kept informed about what the Science Board is doing.

Dr. Tilson thought there were a couple of different ways. One, is to make sure members have the website so that as new information comes up it will be posted. She stated she would be happy to come and report on recommendations and what comes out of the Science Board meetings or any other way to keep the Committee in the loop. The website is https://deq.nc.gov/news/hot-topics/genx-investigation/secretaries-science-advisory-board.

Representative Dixon stated he attended the first meeting of the Secretaries' Science Advisory Board. It was mainly introductions, consideration of a mission statement, how the meetings were going to be set up, and there was almost 100 percent attendance including 4 or 5 people who called in by telephone. He stated that the qualifications of the people who were sitting on the Advisory Board were absolutely amazing and even then it is the balancing act of how collaboratively all of the Departments and this Advisory Board can do the job. He noted that the alarm that has been set off needs to be mitigated to the extent possible and a collaborative effort can go a long way to doing that and hopefully, the media will be cooperative in promoting the very conscientious ways each of these entities are going about trying to resolve these issues.

Dr. Tilson thanked Representative Dixon for being at the first meeting and his support and noted it was very well received and very much appreciated.

Representative Davis welcomed Danny Staley, Director, DPH, DHHS and stated that the Committee would be very glad to hear from him.

Mr. Staley thanked the Committee for inviting him here today and the opportunity to speak to them. His presentation titled NC DHHS Staffing for GenX Response and Calculation of Provisional Health Goal is **attachment 6.**

He stated that their purpose in being here was to answer some of the questions that Committee members have and stated some of them were summarized on his first slide. One question was of the compounds detected through environmental sampling, could it pose a risk to human health?

He explained that Dr. Moore would talk more about that as well as the exposure level and risk assessments and risk communication pieces. Mr. Staley indicated he would be covering the personnel and staff involved in performing a lot of the risk assessment work and where they are in DPH. He stated that the work they had been doing on GenX has been done specifically in the Occupational and Environmental Epidemiology branch. Some positions are funded with State dollars and some are funded with federal dollars, through a couple of grants.

In answer to a question from Representative Davis, Mr. Staley explained in more detail the number of people staffing various components of the Occupational and Environmental Epidemiology branch. He noted it was a small and mighty branch within DPH.

Another question was how the branch would add a toxicologist and how many they would like to add.

Mr. Staley showed a slide with a timeline of toxicologist positions. He stated that there was a number of things that these positions were dealing with on a day-to-day basis. He continued with a more detailed explanation of the staffing and how the branch has rearranged their work distribution. It was not until about 2015 when they started dealing with emerging issues and contaminants that they started developing some backlogs in responding back to individuals with private well concerns, which is a lot of the work that the toxicologist does.

Representative Davis added that he had asked DHHS some questions about the toxicologist position and he learned that in February, 2009, in response to the priority needs in the State Public Health System, one of the two positions of toxicologists was reallocated to a nurse consultant and was transferred to the local technical assistance in training branch. He further stated that he ascertained from Fiscal Research that none of the Governor's recommended budgets submitted since 2008 to 2009 have requested a toxicologist.

Mr. Staley stated that he was finished and unless there were more questions, he would turn it over to Dr. Moore who would talk about how they arrived at their provisional health goal.

Representative Harrison commented that she felt like there was some sort of clearinghouse which states subscribe to that lists chemicals of concern. She thought that previously there was an effort made to get North Carolina to join. She asked if she was right in thinking there was a clearinghouse and if so, is North Carolina a member.

Mr. Staley responded that he was not familiar with the question about the clearinghouse but did know that we work through the CDC in a cooperative program which has multiple states that are working on different emerging contaminants.

Next, Representative Davis introduced Dr. Zack Moore, State Epidemiologist, DPH, DHHS, and expressed appreciation for him being there. His comments were a continuation of **attachment 6.**

Dr. Moore began by stating that he was here to address a couple of questions that were raised by the Committee. First, was to describe the research and studies that contributed to the establishment of the 140 parts per trillion health goal for GenX and second, to provide relevant detail regarding sources of data (studies, etc.) and processes used in developing the health goal.

He began by reviewing what a health goal is:

Level of contamination below which no adverse health effects would be expected over a lifetime (70 years) of exposure
Calculated based on the most vulnerable population
Non-regulatory, non-enforceable
Change as new information becomes available

The requirements to form a health goal are:

Must have sufficient health-related information, including animal studies, epidemiologic studies (human health) and other laboratory studies
Some health-related information not in public domain
Health-related information often lacking for emerging compounds

A health goal = (Reference Dose (RfD) x Relative Source Contribution (RSC)) x Body Weight/ divided by Water Consumption Rate (WCR). A Reference dose=No Adverse Effect Level divided by Uncertainty Factors. He continued to explain the terms, including the No Adverse Effect Level (NOAEL), RfD, Uncertainty Factors (UF), and RSC. The slide presentation gives more detail on each of the terms.

The calculation of a health goal = (RfD (mg/kg/day) x RSC x body weight (kg)) divided by WCR (L/day). He stated that this health goal applies only to GenX, not related compounds. There is not sufficient information at this time to calculate health goals for other emerging PFAS compounds in combination.

Representative Davis asked what information would be needed to calculate other noted health goals.

Dr. Moore responded that ideally they would have animal study data as a starting point so they could understand what would happen in animals and then they would go through the same kind of calculations that he referenced above for GenX for other compounds.

Following the presentation, Representative Davis recognized Representative Dixon. His question was what the first standard was on GenX.

Dr. Moore stated that the first standard was about 500 times higher than the current standard.

Representative Dixon queried further about information to the public and how disconcerting it was to the ordinary person.

Dr. Moore stated that the Department has a lot of interactions with the public and with the people who are affected by this. They have participated in community meetings, put out fact sheets, etc. to try to get the messages across and they are absolutely cognizant of the concerns that people have. He said there is always room

for them to improve their health messaging and that is something they are constantly striving to do.

Representative Dixon then asked what, if any, political influence did the Department feel in the transition from the first standard to the second.

Dr. Moore responded that he was part of all of this and felt no political influence; it was done on a purely scientific basis and continued consultation with the U.S. EPA and other agencies. It was always about trying to come up with the scientifically appropriate health information to provide.

Representative Brisson thanked Dr. Moore for his presentation and asked if "to weather the storm" was there any way to translate the information to the general public.

Dr. Moore responded that there is a need to relay how the levels are calculated, what the levels mean, what the process is from here on out, what the people can expect, and when things might change and what might change them. That is something that the Department has been working on. It is a big challenge and at the top of their priorities.

Representative Steinburg was recognized. He asked Dr. Moore if there had been anything in North Carolina that had been comparable to Gen X that the Department has had to deal with.

Dr. Moore replied that here in the State, this has been unique in many ways particularly when you get pullback just from looking at GenX and consider the other compounds for which there is such limited information. That is not a normal situation; most of their work is on contaminants where they know the health effects and where they have well established science.

Representative Steinburg asked if many of these things, hopefully all of them, that have been confronted over the last 25 or 30 to 40 years have eventually been brought to a safe resolution. He asked if it was fair to say that the track record on cleaning up situations like this and finding a solution to problems with our water supply was pretty good.

Dr. Moore responded that he was not prepared to comment in terms of the overall environmental effects and how those have been mitigated in other situations but from

a health side, he would say the ark has been towards improved identification and remediation either through stopping discharges or remediation techniques.

Mr. Staley added that one of the things that is persistent in the environment that they have stopped producing in the mid-seventies was lead. Lead is comparable but they are still working on the health effects of lead in small children. Sometimes these things do take decades.

The next item on the agenda was an Update on Cape Fear Public Utility Authority (CFPUA) Response to Cape Fear River Water Quality Concerns. Representative Davis introduced Mr. Jim Flechtner, Executive Director and Mr. Frank Styers, Chief Operations Officer.

Mr. Fletchner referred to House Bill 56, Amend Environmental Laws (S.L. 2017-209) and noted an interim report was due no later than December 1, 2017 and a final report no later than April 1, 2018. Costs included study identification and deployment of treatment alternatives ($100,000) and ongoing water monitoring ($85,000). He reviewed the response measures underway, including water treatment alternative evaluation for removing PFAS, GenX and emerging compounds; water supply monitoring; and information sharing through the website. An advanced treatment is in place through technology and includes ozonation, biological filtration and ultraviolet disinfection. The Accelerated Column Test (ACT) was completed in late September 2017. A graph showing preliminary granular activated carbon (GAC) data was to evaluate multiple fluorinated compounds and others of emerging concern; determine breakthrough over time; and determine suitability and operating cost 6 to 12 months before treatment decision are made. He concluded the update with a summary and a schedule.

Representative Harrison asked Dr. Moore if North Carolina looks at other states' standards before adopting our own.

Dr. Moore responded that they do by looking first for federal guidance and if there isn't federal guidance, they look to see if there are other states that have guidance. They also might look to the World Health Organization and the European Chemicals Agency, etc.

Representative Steinburg asked Dr. Moore if he would answer some questions he had related to cancer.

Dr. Moore said they did look at the cancer rates in the Lower Cape Fear in four different counties: Bladen, Brunswick, New Hanover, and Pender. They looked at five different types that had been associated with per-fluorinated compounds. Overall, the cancer rates were similar in those counties to the State rates and this was looking at the rates from 1996 to 2015 as a whole and then they looked in five year increments. That report is available online at the DEQ website.

Representative Davis asked Dr. Moore to get that information to him and then he would disseminate it to the Committee members.

Dr. Moore stated he would and Representative Davis thanked him for his presentation.

The next item on the agenda was an Update on the Action Plan to Implement Section 20(a)(1) of House Bill 56 (GenX Response Measures) by the Cape Fear Public Utility Authority for the filtration and removal of GenX and other emerging compounds from drinking water presented by Jim Flechtner, Executive Director and Frank Styers, Chief Operations Officer.

Mr. Flechtner stated they would be reviewing CFPUA's role in regard to HB56, specifically the initiatives the Authority has taken in response to GenX and other emerging contaminants that have been identified in the Cape Fear River which is their source of water for most of their customers. He thanked the Committee for their support in help funding HB56. He shared that the initiatives that CFPUA had taken would not only help CFPUA, but also Brunswick and Pender Counties who use the same source of water. The work that they have already undertaken has helped to advance the body of knowledge not just for their region, but for bodies across the State that are working with similar issues.

There are three important parts to HB 56 as it relates to water quality and the efforts at CFPUA. First, was to study and identify deployment options and alternatives for their treatment processes. That work is underway. The second component is the ongoing water monitoring. It has two parts to it: the ongoing testing they have been doing for GenX in their water and the work they are doing with UNC-Wilmington. The third part is information sharing and they will provide all of this information to the General Assembly, Brunswick, and Pender Counties. He stressed that none of the things they are doing is a substitute for proper regulation and enforcement. This is reacting to something that is happening but it is very inefficient that individual authorities are trying to sort through these issues.

Mr. Styers was called on to explain the steps to test their options and also improve water quality. He reviewed the work at the Sweeney Surface Water Plant-- a state-of-the-art facility that uses the best available technology in the water treatment industry. Even with the advanced treatment of the Plant, it does not have removal effectiveness with these shorter chain compounds they are dealing with and the Plant was not designed to remove these compounds.

He showed a slide of the ACT that was completed in late September 2017. He also detailed the GAC Pilot Testing equipment and Ion-Exchange Resin Testing. He stated that they are having preliminary success with this test. The Authority has developed some costs, very widely, because they do not know how long the GAC media is going to last. The detail of this is included in the summary.

The presentation was turned back over to Mr. Flechtner to finish. He stated that looking forward, they have prepared a schedule with three time lines. The first one is pilot testing which will be coming in over the next few months. The UNC-W research is key to this and will identify what else is in the river. That report will start to come in during the summer of 2018 and the Authority will have a much better understanding of their options for improving treatment processes.

The second timeline contemplates the possible design and construction of new facilities, an engineering report, detailed design, permitting and bidding, and finally construction of new facilities which would go well into 2022. Any solution on the treatment side is quite a ways out. The last timeline involves replacement of Media, selection of Media, and filter Media replacement and construction. All of these expenses would need to be approved by the Board of the CFPUA.

The final item on the agenda was a presentation on issues concerning emerging compounds from Kemp Burdette, Cape Fear Riverkeeper, Cape Fear River Watch.

Representative Davis stated that he asked Mr. Burdette if he would come and comment on three different things. He gave a brief report on his background and stated he became the Cape Fear Riverkeeper about 10 years ago because of a deep love for the Cape Fear and a deep commitment to protecting it for his children and their community. He came to discuss risk management noting there is a principle in risk management called the precautionary principle, which states “if an action or policy has a suspected risk of causing harm to the public or to the environment, in

the absence of scientific consensus, the burden of proof that it is not harmful falls on those taking that action."

When it comes to emerging contaminants and how we allow industry to discharge contaminants into our drinking water supplies, it seems we have completely disregarded the precautionary principle. The way we currently regulate contaminants allows industry to discharge contaminants that we know very little about and we hope that they don't harm us. The risks of this backwards approach are far too great to continue down this path especially now that we understand how serious and how widespread the problem is. We need to change the way we approach pollution in North Carolina. The burden of proof should always fall on the industry to show, beyond question, that the substances they discharge into our drinking water supplies are safe. GenX is just the tip of the emerging contaminants iceberg and the Cape Fear River is just 1 of 17 in the State of North Carolina.

We know there are other emerging compounds in other rivers. It is very clear that this is a statewide issue. It is not just the Cape Fear River. He urged the Committee to work with their colleagues across the General Assembly to find statewide approaches to address this problem and he believes it can be done.

He also touched on the Science Advisory Board and the role that he hopes they can play in addressing the environmental and health concerns where there seems to be a great risk but very little information and little guidance from federal agencies, like the US EPA and DHHS. North Carolina should not have to wait for guidance from the federal government when situations arise that put North Carolinians into risk. We know our state, we know our issues and he hopes the Science Advisory Board will be empowered to make decisions based on sound science that can protect our state's environment and public health.

Some issues like emerging contaminants in drinking water supplies may even warrant stronger protections at the State level than are in place at the federal level. He hoped that the Science Advisory Board will foster greater communication between DEQ and DHHS, as we know that the connection between the environment and health is clear. This Committee clearly understands how important our rivers are to the people of North Carolina as well how significant the threat of emerging compounds is to the people.

GenX was a wakeup call for citizens, scientists, regulators, and legislators. His thoughts on how we should tackle this issue, include exercising the precautionary

principle, which means industry should be required to show, beyond a shadow of doubt, that their waste streams will not endanger human health or the environment. Emerging compounds and the risk they pose to human health are complex and we should concentrate on building the scientific expertise needed to tackle these issues.

The Science Advisory Board should focus on issues where federal guidance is absent and the risks to human health and the environment are high. We should also focus on filling environmental boards and commissions with scientists. We need to rebuild regulatory agencies so they can do the job North Carolinians expect them to do. DEQ and DHHS are the agencies for statewide solutions to this statewide problem. Finally, we should avoid passing legislation that limits our ability to regulate industry. We can fix this problem but only if we use this crisis as an opportunity to learn from our mistakes and change our behavior moving forward. No industry is more valuable than safe and clear drinking water.

Following Mr. Burdette's update, Representative Davis thanked Mr. Burdette for being here and his comments were appreciated.

Representative Dixon complimented the agenda the Chairs put together. He stated he was very happy that Representatives Davis, Iler, and Grange were taking the time to discuss this at the level that it is being discussed. He offered his thanks to the Chairs and he believed that we have an opportunity to do something worthwhile for our children.

Representative Davis thanked the staff that has worked very hard putting together today's agenda and knows that they will work just as hard to put together the agenda for the next meeting.

Representative Davis announced that the next meeting of the Committee would be on Thursday, November 30, 2017 and would be the final meeting as far as fact finding was concerned. He stated that if there were any additional individuals that any Committee member would like to hear from, he wanted to know as soon as possible, so he and the staff could prepare the agenda for the next meeting. He announced that there would be no meeting in December, so in January he wants the Committee to focus on and be prepared to discuss possible solution and legislation. He would like to see the Committee come forth with a report and present it to the House in the Short Session. He appreciated everyone being here and their input.

Representative Harrison echoed Representative Dixon's compliments on the great job done. She indicated she would like to include flame retardants in the next meeting and stated there is an excellent scientist at Duke University who has done a lot of research and has come to the Legislature and testified for the Environmental Review Commission.

Representative Davis asked that the information be emailed to him and he will sit down with staff and discuss where we have been, where we are, where we are going, and try to come up with the speakers that will address those particular issues.

Representative Grange asked for the opportunity to thank everyone who came and presented today as everything was extremely informative and there was a bit of bipartisan comment between Representative Dixon and Representative Harrison, which she agreed with wholeheartedly. If there are emerging compounds that are discharged into our water and we don't know what they do, then they do not need to be discharged into our water. The bottom line is to be sure we have safe drinking water for all of our citizens. She then thanked Representative Davis for today's agenda.

The meeting was adjourned at 3:10 PM.

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Representative Ted Davis, Jr. Senior Presiding

Judy Lowe, Committee Clerk

**ATTACHMENTS:**

1. Visitor Registration Sheets
2. Emerging Contaminants: A Case Study for the Cape Fear River Basin—Dr. Knappe
3. NC Department of Environmental Quality Update—Sheila Holman
4. Department of Health and Human Services Update on response to Emerging Compounds—Elizabeth Cuervo Tilson, MD, MPH, State Health Director, Chief Medical Officer NC DHHS
5. Secretaries' Science Advisory Board Members—Elizabeth Cuervo Tilson, M.D
6. NC DHHS Staffing for GenX Response and Calculation of Provisional Health Goal—Danny Staley and Zack Moore
7. Update on Cape Fear Public Utility Authority Response to Cape Fear River Water Quality Concerns—Jim Flechtner and Frank Styers